UCRL-JC-124549 Abs

Abstract in preparation for submittal to the
38th Annual Meeting of the APS Division of Plasma Physics
11-15 November 1996, Denver, CO

**Nova experiments on hydrodynamics and instabilities in the solid state,*** B.A. Remington,[1] D.H. Kalantar,[1] N. Woolsey,[2] J. Colvin,[1] D. Griswold,[1] R. Cauble,[1] R. Lee, [1]J.S. Wark,[3] A. Hauer,[4] A. Rubenchik,[5] [1]LLNL, [2]Univ. of Belfast, [3]Oxford Univ., [4]LANL, [5]Univ. of California-Davis . We have started experiments on the Nova Laser to investigate the evolution of hydrodynamic instabilities such as the Richtmyer-Meshkov (RM) and Rayleigh-Taylor (RT) instabilities in the solid state. The RT dispersion curve is predicted to be strongly stabilized in the solid-state plastic flow regime, compared to the liquid state, but essentially no data at pressures above ~1 Mbar exist. We will present initial results from experiments focused on characterizing the state of samples of single-crystal Si as it gets compressed, while remaining in the solid state. We will also describe our experimental design for measuring the RT dispersion curve for solid-state foils such as Cu, and present initial results if available.

*Work performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under contract number W-7405-ENG-48.